

Explanation: (Response to examiner's position on page 6) Tai discloses an inflatable furnishing featuring first and second joining means which are translocatable connectors (33). Tai claims a reclining backrest wherein the erection and recline is manually adjusted by translocating connectors 33 in order to reposition the fixing means (convertible setting belts 3). In claim 1 Tai claims the reclining furnishing (hammock) where connectors 33 are connected to connectors 34. In claim 2 Tai claims the seating furnishing (chair) where one connector 33 on each convertible setting belt 3 is connected to a different connector 36. Translocation of connectors is essential to Tai's disclosure.

The applicant shows improvements over Tai by eliminating the need for translocatable connectors and manual adjustment. Tai discloses the setting of only two angles of recline of the backrest: fully reclined and fully erect. The applicant provides flexibility in the fixing means which enables the backrest to recline at any angle within a continuous range of angles in response to the load of a person leaning on the backrest without the need to translocate any connectors.

In an embodiment the non-translocatable joining means are provided by fabric at the boundaries of the fixing means where the fixing means is a flexible region of the fabric cover of the furnishing. The joining means are an integral part of the fabric cover in that embodiment. Joining of the fixing means to the backrest and base is mentioned on page 7 of the specification in the sentence "In this embodiment the fixing means 21 is a flexible region of the fabric cover 9 where the backrest 2 joins to the base 1".

Thus claim 1 is amended to provide for non-translocatable joining means

If the examiner objects to the term "non-translocatable", the applicant requests that the examiner consider replacing "non-translocatable" with "non-transconnectable" or as a last resort with "permanent" in the amended claim 1. The applicant is willing to accept the use of any of these terms necessary to create an amended claim 1 acceptable by the examiner.

Cancel claims 3 and 4.

Claim 5:

In response to the examiner's statement on page 4 regarding Allowable Subject Matter, claim 6 has been included in claim 5.

Amend claim 5 as follows:

5. The convertible inflatable furnishing of claim 1 wherein a connecting means is provided completely inside the base to connect a region of the base upper skin to a region of the base lower skin with the connecting means being in tension when the base is substantially inflated and the connecting means having such a length as to constrain horizontal mobility of the base upper skin relative to the base lower skin;

wherein the connecting means includes an elastic material to absorb pressure shocks by reducing the maximum tension resulting from sudden loads applied to the furnishing.

Cancel claim 6.

Claim 7:

In view of the examiner's argument on page 3, the applicant wishes to clarify the intent, and reduce the scope of claim 7 by specifying the location and dual function of the connecting means. The functions of the connecting means are: to bias the region of the base upper skin towards the region of the base lower skin; and to transmit tension to the front of the backrest.

Amend claim 7 as follows:

7. The convertible inflatable furnishing of claim 5 wherein the connecting means includes an elastic material biasing the region of the base upper skin towards the region of the base lower skin, wherein the connecting means is connected to the base upper skin at a location where the front side of the backrest is joined to the base upper skin allowing tension in the elastic material to transmit through the base upper skin to the front side of the backrest, the elastic material in tension having a elastic modulus capable of supporting an increased load on the backrest wherein the supporting force tending to maintain erection of the backrest is increased when the base volumetrically expands due to increased pressurization of the base resulting from increased compression of the backrest.

Claim 8:

Peterson does not teach that the air can be squeezed out of the backrest into the base. Peterson teaches that the inflation of the bladder 30 can be changed via the nozzle 32 (figure 4) which is not pneumatically connected to the bladder in the base. The nozzle 32 connects bladder 30 air to external air. Peterson's claim 1 describes "the bladder being selectively inflatable" to support the backrest at a "selected location" (angle) then in claim 4 the inflatability of the base "covered by a fabric shell" is introduced with no discussion of any pneumatic connection to the backrest. Peterson missed the opportunity to simplify his design (eliminating an extra nozzle and bladder) because it was not obvious to him.

The applicant considers that claim 8 is an important non-obvious improvement over Peterson because it allows for inflation and deflation of the backrest without the need to insert air into or expel air from the pneumatic system as a whole.

Amend claim 8 as follows to clarify that the backrest can be deflated into a substantially inflated base:

8. The convertible inflatable furnishing of claim 1 wherein a first part of retaining means and a second part of retaining means are provided which can be fastened together to retain the backrest in a substantially deflated state after the air in the backrest is squeezed out of the backrest into the base through the air passage, including when the base is substantially inflated.

Claim 9:

Peterson does not teach that the deflated backrest can be retained inside the base (as asserted by the examiner on page 4). Peterson teaches that the inflatable seat back 10 including its expandable pocket 12 is "attached" (claim 1) to the horizontal base 3 and 5.

Attention is drawn to figure 5 which clearly shows the deflated seat back is a peripheral attachment outside the base 5 and not inserted or retained inside the base 5. The applicant considers that claim 9 is an important improvement over Peterson because it allows for the backrest to be entirely concealed inside the base (figure 2). Besides the obvious aesthetic advantage, this also means that the deflated backrest is not an external obstruction.

Amend claim 9 as follows to clarify that the backrest can be inserted into a substantially inflated base:

9. The convertible inflatable furnishing of claim 8 wherein the deflated backrest can be inserted into the base and retained substantially inside the base including when the base is substantially inflated.

Claim 10:

In reference to the examiner's arguments on page 4, Peterson teaches the use of retaining means to retain the backrest. Peterson does not teach the use of fastening means to retain the deflated base inside the deflated backrest. Peterson does not teach the use of fastening or retaining means that would enable this retention. For example, it would be physically impossible to close Peterson's zip 24 if the deflated base 5 was inserted into the backrest pocket 12 since the deflated base 5, no matter how compact, would obstruct the zip closing path. The applicant considers the ability to retain the deflated base inside the deflated backrest is a useful improvement over Peterson because an extra carry-bag is not required for packing and portability.

Claim 10:

Amend Claim 10 as follows:

10. The convertible inflatable furnishing of claim 9 wherein the base is sufficiently compact to be fully inserted into the backrest when both are deflated;

wherein a first part of fastening means and a second part of fastening means are provided and can be fastened together to retain the deflated base inside the deflated backrest for the purposes of packing and portability.

Claim 11:

Cancel claim 11.

Claim 12

This claim is a further improvement of the invention because it teaches that with an appropriate non-obvious design the retaining means and fastening means can be provided by the same closure system. The non-obvious aspect is how to design this closure system so that unobstructed closure can be obtained with both the base inside the backrest and, alternatively, the backrest inside the base. This is design revealed in the description of figure 6 in the specification.

At the bottom of page 2 the examiner states that Tai teaches about the possible equivalence of the retaining and fastening means. The connectors 36 and 34 in Tai are for the fixing and joining means (in the applicant's terminology) and therefore relate to the reclining system and bear no relevance to the backrest/base insertion system. Tai makes no reference to insertion of the backrest inside the base or the base inside the backrest.

Claim 12 must be amended to reference the new claim 10.

Claim 13

In response to the examiner's statement on page 4 regarding Allowable Subject Matter, claims 8 and 9 have been included in claim 13.

Amend claim 13 as follows:

13. The convertible inflatable furnishing of claim 1 wherein a first part of retaining means and a second part of retaining means are provided which can be fastened together to retain the backrest in a substantially deflated state after the air in the backrest is squeezed out of the backrest into the base through the air passage; wherein the deflated backrest can be inserted into the base and retained substantially inside the base;

wherein the volume of air in the inflated backrest is sufficient to vary the inflation of the base from firm when the backrest is empty to soft when the backrest is full;

and the outer shape of the base has a horizontal breadth enabling the base, when rotated onto the rim side, to support the torso of a person at a height where massage and other body manipulation and stretching are facilitated;

and the outer shape of the base upper skin has a horizontal width, transverse to the usual direction of sitting, enabling the base upper skin to puff upward beside the outer sides of a sitter's thighs thereby providing armrests.

The applicant is uncertain whether this amended claim 13 provides equivalent protection to claiming each of the three final clauses in the claim in separate claims, or whether claim 13 only provides protection of the case where all three clauses are applicable simultaneously. If and only if the latter is true then the applicant wishes to split claim 13 into three claims as follows (using the numbers of previously canceled claim 2, 3, and 4, and canceling claim 13):

2. *The convertible inflatable furnishing of claim 1 wherein a first part of retaining means and a second part of retaining means are provided which can be fastened together to retain the backrest in a substantially deflated state after the air in the backrest is squeezed out of the backrest into the base through the air passage; wherein the deflated backrest can be inserted into the base and retained substantially inside the base;
wherein the volume of air in the inflated backrest is sufficient to vary the inflation of the base from firm when the backrest is empty to soft when the backrest is full;*
3. *The convertible inflatable furnishing of claim 1 wherein a first part of retaining means and a second part of retaining means are provided which can be fastened together to retain the backrest in a substantially deflated state after the air in the backrest is squeezed out of the backrest into the base through the air passage; wherein the deflated backrest can be inserted into the base and retained substantially inside the base;
wherein the outer shape of the base has a horizontal breadth enabling the base, when rotated onto the rim side, to support the torso of a person at a height where massage and other body manipulation and stretching are facilitated;*
4. *The convertible inflatable furnishing of claim 1 wherein a first part of retaining means and a second part of retaining means are provided which can be fastened together to retain the backrest in a substantially deflated state after the air in the backrest is squeezed out of the backrest into the base through the air passage; wherein the deflated backrest can be inserted into the base and retained substantially inside the base;
wherein the outer shape of the base upper skin has a horizontal width, transverse to the usual direction of sitting, enabling the base upper skin to puff upward beside the outer sides of a sitter's thighs thereby providing armrests.*

Claim 14

Cancel claim 14.

Claim 15

The examiner (on page 3) does not refer to the latter part of this claim referring to size and shape of the bladder. The intent of this claim is to claim an inflatable

furnishing wherein the shape of the cover determines the shape of the furnishing and the shape of the bladder does not determine the shape of the furnishing. The applicant wants to amend this claim to make this intent more obvious.

In Tai the bladder (2) is shown in figure 6 shaped similarly to the cover, when inflated outside the cover. As such there is no requirement that Tai's bladder applies tension to the cover. In figure 5 of the present application the shape of the bladder has no close similarity to the shape of the cover shown in figure 1, and applies tension throughout the cover when inflated.

The applicant considers this claim a useful non-obvious improvement of the invention because it removes considerable constraints on the shape of the bladder.

Amend claim 15 as follows:

15. The convertible inflatable furnishing of claim 5 wherein the bladder is fully enclosed by a cover, the base lower skin and the base upper skin are parts of the cover, and the bladder is of any size and shape that when inflated fills the cover and applies tension substantially throughout the cover so that the shape of the cover substantially determines the shape of the furnishing.

Claim 16

The examiner considers (on page 4) that the web section 20 of Peterson is analogous to the connecting means of the application in relation to the bladder. The applicant wishes to narrow the scope of claim 16 to remove this unintended analogy. The connecting means is located centrally and internally in the base and is surrounded by the bladder. In Peterson the web section 20 is external and not surrounded by the bladder: the bladder is only on one side of the web section 20.

The use of a single tubular bladder is a non-obvious, efficient, use of available products because tubular plastic is readily available and little shaping is required.

Amend claim 16 as follows:

16. The convertible inflatable furnishing of claim 15 wherein the inflated bladder is tubular with sealed ends and the axis of the tubular bladder is curved in a substantially planar path surrounding the connecting means and the bladder is sufficiently long that a region of the bladder in the vicinity of one sealed end of the bladder abuts a region of the bladder in the vicinity of the other sealed end of the bladder.

Claim 17

Cancel claim 17.

Claim 18

The applicant is uncertain whether the examiner intends to affirm on page 4 that the backrest of Peterson rapidly inflates when a load is applied to the base. Since the nozzle (32) is the only means of inflating Peterson's backrest and it is not pneumatically connected with the base 5, the bladder 30 in Peterson's backrest will not inflate when a load is applied to the base 5.

In order to emphasize the non-obvious structure in which the load applied to the base causes the bladder end in the backrest to inflate, claim 18 is amended as follows:

18. The convertible inflatable furnishing of claim 16 wherein a first bladder end protrudes upward into the backrest when the backrest is erect, and the first bladder end is shaped similarly to and larger than the backrest so that the inflation of the first bladder end rapidly erects the backrest when a load is applied to the base and the retaining means is released.

Claims 19 and 20

The examiner alludes to these claims on page 4. The intent of the claims is to align an end of the bladder with the backrest so that the backrest inflates properly when required. This is not an issue for Peterson because the backrest bladder is always located in its pocket and cannot enter the separate base enclosure. The claims are addressing this problem which is specific to efficient embodiments of the present inflatable furnishing.

Rather than adding a locating means, this claim provides for the more efficient non-obvious use of the nozzle as a locating device.

The claims have been amended as follows to specify more precisely the positional options for the nozzle.

19. The convertible inflatable furnishing of claim 18 wherein a nozzle for inflation and deflation of the bladder is positioned near the first bladder end and the nozzle is fixed to the cover directly below the backrest on the base, or on the backrest to assist in locating the first bladder end in the backrest.

20. The convertible inflatable furnishing of claim 18 wherein a nozzle for inflation and deflation of the bladder is positioned near the first bladder end and the nozzle is fixed to the connecting means directly below the backrest to assist in locating the first bladder end in the backrest.

Claim 21 is already cancelled.

The applicant has no previous experience with responding to examiner's findings. He appreciates the explanations the examiner has provided and requests further merciful treatment for finalizing this application.

Regards,

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Attachment 1: Clean Version of Amended Claims.

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1. A convertible inflatable furnishing which comprises an inflatable base including a base upper skin which forms a layer of the upper side of the base, a base lower skin which forms a layer of the lower side of the base, and a rim side which links the edge of the upper side of the base to the edge of the lower side of the base, an inflatable backrest, a fixing means to fix the backrest to the base upper skin, a first joining means joining the fixing means to the backrest and a second joining means joining the fixing means to the base upper skin, and an air passage between the base and the backrest allowing a flow of air between the inside of the base and the inside of the backrest when loads on the base and backrest change; said first joining means and said second joining means are non-translocatable; said fixing means is sufficiently flexible to allow the backrest to recline increasingly with deflation of the backrest including when the backrest is under an increasing load, and allow the backrest to erect increasingly with inflation of the backrest including when the load on the backrest is reducing.
 2. The convertible inflatable furnishing of claim 1 wherein a first part of retaining means and a second part of retaining means are provided which can be fastened together to retain the backrest in a substantially deflated state after the air in the backrest is squeezed out of the backrest into the base through the air passage; wherein the deflated backrest can be inserted into the base and retained substantially inside the base; wherein the volume of air in the inflated backrest is sufficient to vary the inflation of the base from firm when the backrest is empty to soft when the backrest is full;
 3. The convertible inflatable furnishing of claim 1 wherein a first part of retaining means and a second part of retaining means are provided which can be fastened together to retain the backrest in a substantially deflated state after the air in the backrest is squeezed out of the backrest into the base through the air passage; wherein the deflated backrest can be inserted into the base and retained substantially inside the base; wherein the outer shape of the base has a horizontal breadth enabling the base, when rotated onto the rim side, to support the torso of a person at a height where massage and other body manipulation and stretching are facilitated;
 4. The convertible inflatable furnishing of claim 1 wherein a first part of retaining means and a second part of retaining means are provided which can be fastened together to retain the backrest in a substantially deflated state after the air in the backrest is squeezed out of the backrest into the base through the air passage; wherein the deflated backrest can be inserted into the base and retained substantially inside the base; wherein the outer shape of the base upper skin has a horizontal width, transverse to the usual direction of sitting, enabling the base upper skin to puff upward beside the outer sides of a sitter's thighs thereby providing armrests.
 5. The convertible inflatable furnishing of claim 1 wherein a connecting means is provided completely inside the base to connect a region of the base upper skin to a

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region of the base lower skin with the connecting means being in tension when the base is substantially inflated and the connecting means having such a length as to constrain horizontal mobility of the base upper skin relative to the base lower skin; wherein the connecting means includes an elastic material to absorb pressure shocks by reducing the maximum tension resulting from sudden loads applied to the furnishing.

6. Cancelled.
7. The convertible inflatable furnishing of claim 5 wherein the connecting means includes an elastic material biasing the region of the base upper skin towards the region of the base lower skin, wherein the connecting means is connected to the base upper skin at a location where the front side of the backrest is joined to the base upper skin allowing tension in the elastic material to transmit through the base upper skin to the front side of the backrest, the elastic material in tension having a elastic modulus capable of supporting an increased load on the backrest wherein the supporting force tending to maintain erection of the backrest is increased when the base volumetrically expands due to increased pressurization of the base resulting from increased compression of the backrest.
8. The convertible inflatable furnishing of claim 1 wherein a first part of retaining means and a second part of retaining means are provided which can be fastened together to retain the backrest in a substantially deflated state after the air in the backrest is squeezed out of the backrest into the base through the air passage, including when the base is substantially inflated.
9. The convertible inflatable furnishing of claim 8 wherein the deflated backrest can be inserted into the base and retained substantially inside the base including when the base is substantially inflated.
10. The convertible inflatable furnishing of claim 9 wherein the base is sufficiently compact to be fully inserted into the backrest when both are deflated; wherein a first part of fastening means and a second part of fastening means are provided and can be fastened together to retain the deflated base inside the deflated backrest for the purposes of packing and portability.
11. Cancelled.
12. The convertible inflatable furnishing of claim 10 wherein the first part of the fastening means is also the first part of the retaining means and the second part of the fastening means is also the second part of the retaining means.
13. Cancelled. ✓
14. Cancelled.
15. The convertible inflatable furnishing of claim 5 wherein the bladder is fully enclosed by a cover, the base lower skin and the base upper skin are parts of the cover, and the bladder is of any size and shape that when inflated fills the cover and

applies tension substantially throughout the cover so that the shape of the cover substantially determines the shape of the furnishing.

16. The convertible inflatable furnishing of claim 15 wherein the inflated bladder is tubular with sealed ends and the axis of the tubular bladder is curved in a substantially planar path surrounding the connecting means and the bladder is sufficiently long that a region of the bladder in the vicinity of one sealed end of the bladder abuts a region of the bladder in the vicinity of the other sealed end of the bladder.

17. Cancelled.

18. The convertible inflatable furnishing of claim 16 wherein a first bladder end protrudes upward into the backrest when the backrest is erect, and the first bladder end is shaped similarly to and larger than the backrest so that the inflation of the first bladder end rapidly erects the backrest when a load is applied to the base and the retaining means is released.

19. The convertible inflatable furnishing of claim 18 wherein a nozzle for inflation and deflation of the bladder is positioned near the first bladder end and the nozzle is fixed to the cover directly below the backrest on the base, or on the backrest to assist in locating the first bladder end in the backrest.

20. The convertible inflatable furnishing of claim 18 wherein a nozzle for inflation and deflation of the bladder is positioned near the first bladder end and the nozzle is fixed to the connecting means directly below the backrest to assist in locating the first bladder end in the backrest.

21. Cancelled.
